MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2015/2016 SESSION

TWS 2551 – WEB SERVICES
(All sections / Groups)

17 OCTOBER 2015
2.30 pm – 4.30 pm
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of 5 pages only.

2. Attempt **ALL** the questions. All questions carry equal marks and the distribution of the marks for each question is given.

3. Please write your answers in the Answer Booklet provided.

Question 1

a) Draw the Web Service technical stack and briefly explain each layer. [4 marks]

b) What happen if we do not have WSDL and UDDI? Can we still call the functions? [3 marks]

c) Why it is difficult to extract information from HTML page? [1 mark]

d) Why do we need to have attributes in XML whereby all the data can be stored using elements? Provide an example to help justify your answer. [2 marks]

Question 2

a) XPath is used in XSLT to specify the path of data that is stored in XML document. What is the difference between // and / in XPath? [2 marks]

b) Write a DTD that defines the structure of a courier shipment. The courier shipment should contains the information about the sender, receiver, product details and the shipment tracking number. [4 marks]

c) Write a Schema that match the DTD in question 2 (b). [4 marks]

Question 3

a) Which part of the SOAP message that is considered optional and what kind of information that it contains? [2 marks]

Continued.......

b) Consider the following C# code:

```csharp
public class Service : System.Web.Services.WebService
{
    public Service () {
        //Uncomment the following line if using designed
components
        //InitializeComponent();
    }

    [WebMethod]
    public Movie movie(string name, long id) {
        Movie m = new Movie();
        m.name = name;
        m.id = id;
        return m;
    }

}

public class Movie
{
    public string name;
    public long id;
    public string description;

    public void setName(string Name)
    {
        name = Name;
    }
    public void setId(long Id)
    {
        id = Id;
    }
}
```

Write the SOAP request for the WebMethod movie. [4 marks]

c) Write the SOAP response for the given WebMethod movie (refer question 3 (b)).

[4 marks]

Continued......

Question 4

Consider the following WSDL

```xml
<?xml version="1.0" encoding="utf-8" ?>
<wsdl:definitions xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
    xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
    xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
    xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"
    xmlns:tns="http://tempuri.org/"
    xmlns:s="http://www.w3.org/2001/XMLSchema"
    xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/"
    xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
    targetNamespace="http://tempuri.org/"
    xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
<wsdl:types>
<s:schema elementFormDefault="qualified"
    targetNamespace="http://tempuri.org/">
<s:element name="abc">
  <s:complexType />
    </s:element>
<s:element name="abcResponse">
  <s:complexType />
    </s:element>
<s:element name="age">
<s:complexType>
<s:sequence>
  <s:element minOccurs="1" maxOccurs="1" name="x" type="s:int" />
    </s:sequence>
    </s:complexType>
    </s:element>
<s:element name="ageResponse">
<s:complexType>
<s:sequence>
  <s:element minOccurs="1" maxOccurs="1" name="ageResult" type="s:string"
  />
    </s:sequence>
    </s:complexType>
    </s:element>
    </s:schema>
    </wsdl:types>
<wsdl:message name="testSoapIn">
  <wsdl:part name="parameters" element="tns:test" />
    </wsdl:message>
<wsdl:message name="testSoapOut">
  <wsdl:part name="parameters" element="tns:testResponse" />
    </wsdl:message>
<wsdl:message name="testingSoapIn">
```

<div align="right">Continued......</div>

```xml
      <wsdl:part name="parameters" element="tns:testing" />
        </wsdl:message>
  - <wsdl:message name="testingSoapOut">
      <wsdl:part name="parameters" element="tns:testingResponse" />
        </wsdl:message>
  - <wsdl:portType name="ServiceSoap">
  - <wsdl:operation name="test">
      <wsdl:input message="tns:testSoapIn" />
      <wsdl:output message="tns:testSoapOut" />
        </wsdl:operation>
  - <wsdl:operation name="testing">
      <wsdl:input message="tns:testingSoapIn" />
      <wsdl:output message="tns:testingSoapOut" />
        </wsdl:operation>
        </wsdl:portType>
  - <wsdl:binding name="ServiceSoap" type="tns:ServiceSoap">
      <soap:binding transport="http://schemas.xmlsoap.org/soap/http" />
  - <wsdl:operation name="test">
      <soap:operation soapAction="http://tempuri.org/test" style="document" />
  - <wsdl:input>
      <soap:body use="literal" />
        </wsdl:input>
  - <wsdl:output>
      <soap:body use="literal" />
        </wsdl:output>
        </wsdl:operation>
  - <wsdl:operation name="testing">
      <soap:operation soapAction="http://tempuri.org/testing" style="document"
        />
  - <wsdl:input>
      <soap:body use="literal" />
        </wsdl:input>
  - <wsdl:output>
      <soap:body use="literal" />
        </wsdl:output>
        </wsdl:operation>
        </wsdl:binding>
  - <wsdl:binding name="ServiceSoap12" type="tns:ServiceSoap">
      <soap12:binding transport="http://schemas.xmlsoap.org/soap/http" />
  - <wsdl:operation name="test">
      <soap12:operation soapAction="http://tempuri.org/test" style="document"
        />
  - <wsdl:input>
      <soap12:body use="literal" />
        </wsdl:input>
  - <wsdl:output>
      <soap12:body use="literal" />
        </wsdl:output>
```

Continued......

```xml
      </wsdl:operation>
-   <wsdl:operation name="testing">
    <soap12:operation soapAction="http://tempuri.org/testing"
      style="document" />
-   <wsdl:input>
    <soap12:body use="literal" />
      </wsdl:input>
-   <wsdl:output>
    <soap12:body use="literal" />
      </wsdl:output>
      </wsdl:operation>
      </wsdl:binding>
-   <wsdl:service name="Service">
-   <wsdl:port name="ServiceSoap" binding="tns:ServiceSoap">
    <soap:address location="http://0.0.0.0:1975/WebSite/Service.asmx" />
      </wsdl:port>
-   <wsdl:port name="ServiceSoap12" binding="tns:ServiceSoap12">
    <soap12:address location="http://0.0.0.0:1975/WebSite/Service.asmx" />
      </wsdl:port>
      </wsdl:service>
      </wsdl:definitions>
```

a) Where is the service located? If the service is uploaded to a hosting (not a localhost), which part of the URL will most probably change? [2 marks]

b) Write a sample C# code to invoke/call the service. Assume that the Web reference name is 'abc'. [3 marks]

c) Explain what is white page, yellow page and green page in UDDI? [3 marks]

d) List down and explain two causes that can affect interoperability in Web Service? [2 marks]

End of Page.